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ABSTRACT OF THE DISCLOSURE

A wafer passivation structure and its method of fabrication is described. According to one embodiment of the present invention a metal layer having a bond pad spaced by a gap from a metal member is formed on a substrate. A first dielectric layer is then formed over the bond pad and the metal member and completely fills the gap. Next a second dielectric layer, having a dielectric constant greater than the first dielectric layer and being hermetic is formed over the first dielectric layer. In another embodiment of the present invention a first dielectric layer is formed on the top surface of a bond pad of a substrate. A second dielectric layer is then formed on the first dielectric. An opening is then formed through the first and second dielectric layers so as to expose the top surface of the bond pad. A barrier layer is then deposited on the sides of the opening and on the top surface of the bond pad. A contact is then formed on the barrier layer in the opening.

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